IN THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application:

Claims 1-14 (Canceled)

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Claim 15 (Currently Amended): An image processing apparatus comprising:

an imaging optical system for forming an image of an object on an imaging surface;

a color imaging device including photo-detectors and a color filter arranged on the imaging surface in two-dimensions, for performing photoelectric conversion of the image of the object formed by the imaging optical system to obtain image data of the image of the object extracted through selected only one color of the color filter exclusive of other non-selected colors of the color filter;

shift drive means for shifting the imaging optical system and the photo-detectors relative to each other; and

a control unit for generating single synthesized image data using image data of the image of the object obtained through selected only one color of the color filter exclusive of other non-selected colors of the color filter of the color imaging device, and image data of the image of the object obtained through the selected only one color of the color filter exclusive of other non-selected colors of the color filter when the imaging optical system and the photo-detectors are shifted relative to each other

by the shift drive means by a distance corresponding to a predetermined pitch on the imaging surface in a predetermined direction;

wherein the control unit includes output means for outputting the single synthesized image data as single monochromatic image data.

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Claim 16 (Previously Presented): An image processing apparatus according to Claim 15, wherein the color filter includes three types of color portions arranged according to a Bayer scheme.

Claim 17 (Previously Presented): An image processing apparatus according to Claim 15, wherein the predetermined pitch is a distance corresponding to 1/n (n is an integer) of a pixel on the imaging surface.

Claim 18 (Previously Presented): An image processing apparatus according to Claim 17, wherein the control unit repeats shifting by the distance corresponding to 1/n (n is an integer) of the pixel on the imaging surface a predetermined number of times.

Claim 19 (Previously Presented): An image processing apparatus according to Claim 18, wherein the control unit obtains N images, when the predetermined number of times is N.

Claim 20 (Currently Amended): An image processing apparatus according to Claim 15, wherein the selected only one color of the color filter is green, and the other non-selected colors are blue and red.

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Claim 21 (Currently Amended): An image processing method comprising:

forming an image of an object on an imaging surface of a color imaging device by an imaging optical system;

extracting first image data of the image of the object of a selected only one color exclusive of other non-selected colors available from ~~the~~an image of the object formed on the imaging surface;

shifting the image of the object formed on the imaging surface by a distance corresponding to a predetermined pitch on the imaging surface in a predetermined direction;

extracting second image data of the image of the object of the selected only one color exclusive of other non-selected colors available from an image of the object obtained after shifting is performed;

synthesizing the first and second image data to generate single synthesized image data;

outputting the single synthesized image data as single monochromatic image data.

Claim 22 (Currently Amended): An image processing method according to Claim 21, wherein the selected only one color of ~~three colors~~the image is green, and the other non-selected colors of the image are blue and red.

Claim 23 (Previously Presented): An image processing method according to Claim 21, wherein the color imaging device includes photo-detectors arranged on the imaging surface each forming a pixel, and a color filter having three types of color portions arranged at positions respectively corresponding to the photo-detectors, and the image of the object is formed on the photo-detectors through the color filter by the imaging optical system.

Claim 24 (Previously Presented): A method according to Claim 21, wherein the steps for shifting the image of the object formed on the imaging surface and extracting the second image data are repeated to extract a plurality of second image data.

Claim 25 (Currently Amended): An image processing apparatus comprising:

an imaging optical system for forming an image of an object on an imaging surface;

a color imaging device including photo-detectors and a color filter whose a plurality of color portions are arranged on the imaging surface in two-dimensions, for performing photoelectric conversion of the image of the object formed by the imaging optical system to obtain image data of the image of the object extracted through

selected only one color of color portions of the color filter exclusive of other non-selected colors of color portions of the color filter;

control means;

shift drive means for shifting the imaging optical system and the color imaging device relative to each other under control of the control means by a distance corresponding to a predetermined pitch on the imaging surface in a predetermined direction;

image synthesizing means for generating a single synthesized image using image data of the image of the object obtained through selected only one color of color portions of the color filter exclusive of other non-selected colors of color portions of the color filter of the color imaging device, and image data of an image of the object obtained through the selected only one color of color portions of the color filter exclusive of other non-selected colors of color portions of the color filter when the imaging optical system and the color imaging device are shifted relative of each other by the shift drive means; and

output means for outputting the single synthesized image data generated by the image synthesizing means as a single monochromatic image data under control of the control means.

Claim 26 (Previously Presented): An apparatus according to Claim 25, wherein the shift drive means shifts the imaging optical system and the color imaging device relative to each other by distances corresponding to a predetermined pitch on the imaging surface in predetermined plurality directions different from each other.

Claim 27 (Previously Presented): An apparatus according to Claim 25, wherein the color filter includes three types of color portions arranged according to a Bayer scheme.

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Claim 28 (Previously Presented): An apparatus according to Claim 25, wherein the predetermined pitch corresponds to 1/n (n: integer) of a pixel in the imaging surface.

Claim 29 (Previously Presented): An apparatus according to Claim 28, wherein the control means controls the shift drive means to repeat a plurality of shifts by the distances corresponding to 1/n (n: integer) of the pixel in the imaging surface.

Claim 30 (Currently Amended): An apparatus according to Claim 25, wherein the selected only one color of color portions of the color filter is green, and the other non-selected colors of color portions of the color filter are blue and red.

Claim 31 (Newly Added): An image processing apparatus comprising:

an imaging optical system for forming an image of an object on an imaging surface;

a color imaging device including photo-detectors and a color filter arranged on the imaging surface in two-dimensions;

a shift drive unit arranged to shift the imaging optical system and the photo-detectors relative to each other; and

a control unit arranged to generate a monochromatic image by performing the following:

extracting only a selected color portion of an image of the object formed on the imaging surface from color portions of the image of the object, without extracting other color portions of the image of the object formed on the imaging surface, to obtain first image data;

shifting the image of the object formed on the imaging surface by a distance corresponding to a predetermined pitch on the imaging surface in a predetermined direction;

after shifting is performed, extracting only the selected color portion of the image of the object formed on the imaging surface from color portions of the image of the object, without extracting other color portions of the image of the object formed on the imaging surface, to obtain second image data;

synthesizing the first and second image data to generate single synthesized image data; and

outputting the single synthesized image data as the monochromatic image.

Claim 32 (Newly Added): An image processing apparatus according to Claim 31, wherein the selected color portion of the image is green, and the other color portions of the image are blue and red.

Claim 33 (Newly Added): An image processing apparatus according to Claim 31, wherein the photo-detectors are arranged on the imaging surface each forming a pixel, and the color filter having three color portions arranged at positions respectively corresponding to the photo-detectors, and the image of the object is formed on the photo-detectors through the color filter by the imaging optical system.

Claim 34 (Newly Added): An image processing apparatus according to Claim 31, wherein the predetermined pitch is a distance corresponding to 1/n (n is an integer) of a pixel on the imaging surface.

Claim 35 (Newly Added): An image processing apparatus according to Claim 31, wherein the control unit repeats shifting by the distance corresponding to 1/n (n is an integer) of the pixel on the imaging surface a predetermined number of times.